

## REMARKS

### Status of the Claims

Claims 1-3 and 8-18 are now pending in this application. Claims 1 and 12 are independent claims. Claims 4-7 were previously canceled without prejudice or disclaimer. Reconsideration of this application in light of the following remarks is respectfully requested.

### Information Disclosure Citation

Applicants thank the Examiner for considering the references supplied with the Information Disclosure Statements filed June 10, 2010 and October 5, 2010 and for providing Applicants with a copy of the PTO-SB08 form filed therewith acknowledging this consideration.

### Rejections under 35 U.S.C. § 103

Item 3 on page 2 of the outstanding Action sets forth a rejection of claims 1, 2, 12, and 13 under 35 U.S.C. § 103(a) as being unpatentable over Shimizu (U.S. Patent No. 5,998,925, hereinafter "Shimizu") in view of Kelsey, Jr. (U.S. Patent Application Publication No. 2002/0158267, "Kelsey"). This rejection is respectfully traversed.

The light emitting device of Shimizu is taught at col. 8, lines 30-36, and lines 50-54, to include a "coating resin 101 that contains the phosphor" that is to "cover the light emitting component 102" as also shown by Fig. 1 or a coating 201 formed from a coating material that "contains a specified phosphor" that will fully cover the light emitting element 202 as shown by Fig. 2. There is no teaching or suggestion to be found in these suggested coatings (101 or 201) of Shimizu of a solid material illuminant medium that "is selected from the group consisting of GaN, AlN, InGa<sub>3</sub>N, InAlN, InGaAlN, Si<sub>3</sub>N<sub>4</sub>, GaNP, AlNP, InGaNP, InAlNP, InGaAlNP, GaNAs, AlNAs, InGaNAs, InAlNAs, InGaAlNAs, GaNAsP, AlNAsP, InGaNAsP, InAlNAsP, and InGaAlNAsP."

Page 3 of the outstanding Action tries to cure this deficiency of Shimizu by turning to the teachings of Kelsey.

In this last regard, page 3 of the outstanding Action asserts that Kelsey Jr. teaches solid material medium is selected from the group consisting of GaN, AlN, InGa<sub>3</sub>N, InAlN, InGaAlN, Si<sub>3</sub>N<sub>4</sub>, GaNP, AlNP, InGaNP, InAlNP, InGaAlNP, GaNAs, AlNAs, InGaNAs, InAlNAs, InGaAlNAs, GaNAsP, AlNAsP, InGaNAsP, InAlNAsP, and InGaAlNAsP (¶18) in order to

provide a luminescent powder than [sic] can be used beyond thin film technology and for a wider range of displays (¶6, lines 5-7).

While it is true that ¶ [0018] of Kelsey teaches “[p]hosphors in this family of materials [compounds in the gallium nitride family of alloys] can be produced in powdered form,” there is nothing in ¶ [0018] or ¶ [0006] of Kelsey that suggests that these “**phosphors**” can somehow be used to modify the Shimizu light emitting device that has the preferred “**phosphor**” of col. 13, lines 5-50 that is represented by the general formula  $(Y_{1-p-q-r}Gd_pCe_qSm_r)_3Al_5O_{12}$ . In this respect, col. 10, lines 17-35 of Shimizu teaches that:

The **phosphor** used in the light emitting diode of the first embodiment is a **phosphor** which, when excited by visible light or ultraviolet ray emitted by the semiconductor light emitting layer, emits light of a wavelength different from that of the exciting light. **The phosphor is specifically garnet fluorescent material activated with cerium which contains at least one element selected from Y, Lu, Sc, La, Gd and Sm and at least one element selected from Al, Ga and In.** According to the present invention, the fluorescent material is preferably yttrium-aluminum-garnet fluorescent material (YAG phosphor) activated with cerium, or a fluorescent material represented by general formula  $(Re_{1-r}Sm_r)_3(Al_{1-s}Ga_s)_5O_{12}:Ce$ , where  $0.1 \leq r < 1$  and  $0 \leq s \leq 1$ , and Re is at least one selected from Y and Gd. In case the LED light emitted by the light emitting component employing the gallium nitride compound semiconductor and the fluorescent light emitted by the phosphor having yellow body color are in the relation of complementary colors, white color can be output by blending the LED light and the fluorescent light. (Emphasis added).

Shimizu further teaches (at col. 10, lines 62-67) that:

By using the phosphor of the first embodiment, light emitting diode having excellent emission characteristics can be made, because the fluorescent material has enough light resistance for high-efficient operation even when arranged adjacent to or in the vicinity of the light emitting components 102, 202 with radiation intensity.

As has been previously pointed out, merely suggesting that the teachings of Kelsey as to forming a gallium nitride phosphor powder “could” lead the worker of ordinary skill in the art to modify Shimizu in some undefined way to somehow include this Kelsey gallium nitride phosphor powder in place of or in some manner combined with the above-noted covering materials 101 and 201 or some other part of the Shimizu taught light emitting device is not a

rationale that includes any reasonable explanations of any actual modification to the Shimizu taught light emitting device. As also previously noted, this is a violation of the Supreme Court required "articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR Int'l v. Teleflex Inc.*, 127 S.Ct. 1727, 82 USPQ2d 1385, 1396 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)). In this regard, MPEP § 706.02(j) is also again noted to require an explanation in which the Examiner identifies "the proposed modification of the applied reference(s) (here the modification of the Shimizu taught phosphor by the Kelsey taught phosphor) necessary to arrive at the claimed subject matter" (emphasis added).

To the extent that the outstanding Action may have been trying to establish a *prima facie* case of obviousness based upon an "Obvious To Try" rationale relative to the assertion of what the artisan "could" have done, MPEP § 2143 establishes that this rationale requires that there is a choice from a finite number of identified, predictable solutions, with a reasonable expectation of success and the following further criteria:

To reject a claim based on this rationale, Office personnel must resolve the *Graham* factual inquiries. Then, Office personnel must articulate the following:

(1) a finding that at the time of the invention, there had been a recognized problem or need in the art, which may include a design need or market pressure to solve a problem;

(2) a finding that there had been a finite number of identified, predictable potential solutions to the recognized need or problem;

(3) a finding that one of ordinary skill in the art could have pursued the known potential solutions with a reasonable expectation of success; and

(4) whatever additional findings based on the *Graham* factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.

The rationale to support a conclusion that the claim would have been obvious is that "a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely that product [was] not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103." *KSR*, 550 U.S. at \_\_\_, 82 USPQ2d at 1397. **If any of these findings cannot be made, then this rationale cannot be used to**

**support a conclusion that the claim would have been obvious to one of ordinary skill in the art.** (Emphasis added).

As at least findings 1-3 cannot be made, this rationale cannot be used.

To the extent that the outstanding Action may have been trying to establish a *prima facie* case of obviousness based upon a rationale that the artisan would have been making a simple substitution of one known element for another to obtain predictable results, the outright substitution of the phosphors made up of compounds in the gallium nitride family of alloys taught by Kelsey for the Shimizu taught garnet fluorescent material phosphor (that is activated with cerium and which contains at least one element selected from Y, Lu, Sc, La, Gd and Sm and at least one element selected from Al, Ga and In) would not result in the claimed device. In this regard, such an outright substitution of the Kelsey phosphors made up of compounds in the gallium nitride family of alloys for the relied on Shimizu phosphor of the general formula  $(Y_{1-p-q}, Gd_p Ce_q Sm_r)_3 Al_5 O_{12}$  would mean that no Sm would be included at all, and certainly not the claimed Sm of 0.01 to 10 mol%.

To whatever extent that the outstanding Action is relying on there being a teaching, suggestion, or motivation in the prior art (TSM) that would have led one of ordinary skill to modify the prior art reference to arrive at the claimed invention, the TSM test requirements are not satisfied by simply noting that ¶ [0006] of Kelsey teaches providing a device with highly efficient electroluminescent emitters. Nothing in this statement can be interpreted to mean that previous devices using the same materials formed as thin films would have been less efficient or that this means that using other materials would be less efficient. Furthermore, simply because Kelsey teaches that these materials were previously provided only in thin film form is irrelevant as to the reason why the artisan would have been led to modify the Shimizu taught light emitting device and its advantageous garnet fluorescent material phosphor (that is activated with cerium and which contains at least one element selected from Y, Lu, Sc, La, Gd and Sm and at least one element selected from Al, Ga and In) by the Kelsey teachings of phosphors made up of compounds in the gallium nitride family of alloys. It is further emphasized that the outstanding Action commits clear error by not explaining exactly what would be changed in the Shimizu taught light emitting device to accommodate these Kelsey teachings of phosphors made up of compounds in the gallium nitride family of alloys. In this respect, the PTO's own precedent

establishes that “[t]o support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.” *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).”

In view of the above, independent claims 1 and 12 and claim 2 dependent on claim 1 and claim 13 dependent on claim 12 are respectfully submitted to be clearly patentable over the reasonable teachings and fair suggestions of Shimizu in view of Kelsey. Accordingly, the withdrawal of the rejection of claims 1, 2, 12, and 13 under 35 U.S.C. § 103(a) as being unpatentable over Shimizu in view of Kelsey is respectfully requested.

#### **103 REJECTION OF CLAIMS 3, 11, 14, 15, AND 18**

Item 4 on page 5 of the outstanding Action sets forth a rejection of claims 3, 11, 14, 15, and 18 under 35 U.S.C. § 103(a) as being unpatentable over Shimizu in view of Kelsey further in view of Henrichs (U.S. Patent No. 6,625,195). This rejection is respectfully traversed.

Henrichs is cited as to the subject matter added by claims 3, 11, 14, 15, and 18 that depend from either independent claim 1 or from independent claim 12. To whatever extent that Henrichs may or may not teach this dependent claim added subject matter, it is clear that Henrichs does not cure the deficiencies noted above as to the reliance on Shimizu in view of Kelsey. Accordingly, dependent claims 3, 11, 14, 15, and 18 are respectfully submitted to patentably define over the applied references for at least the same reason that respective parent independent claims 1 and 12 do. Therefore, withdrawal of this improper rejection of claims 3, 11, 14, 15, and 18 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Shimizu in view of Kelsey in further view of Henrichs is respectfully requested.

#### **103 REJECTION OF CLAIMS 8, 10, AND 16**

Item 57 on page 9 of the outstanding Action sets forth a rejection of claims 8, 10, and 16 under 35 U.S.C. § 103(a) as being unpatentable over Shimizu in view of Kelsey and further in view of Cheetham et al. (U.S. Patent Application Publication No. 2005/00774999, hereinafter “Cheetham”). This rejection is respectfully traversed.

Cheetham is cited as to the subject matter added by dependent claims 8 and 10 that depend from independent claim 1 and claim 16 that depends from independent claim 12. To whatever extent that Cheetham may or may not teach this dependent claim added subject matter, it is clear that Cheetham does not cure the deficiencies noted above as to the reliance on Shimizu in view of Kelsey. Accordingly, dependent claims 8, 10, and 16 are respectfully submitted to patentably define over the applied references for at least the same reason that respective parent independent claims 1 and 12 do. Therefore, withdrawal of this improper rejection of claims 8, 10, and 16 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Shimizu in view of Kelsey in further view of Cheetham is respectfully requested.

### **103 REJECTION OF CLAIM 9**

Item 6 on page 9 of the outstanding Action sets forth a rejection of claim 9 under 35 U.S.C. § 103(a) as being unpatentable over Shimizu in view of Kelsey and Cheetham and further in view of Justel<sup>1</sup> et al. (U.S. Patent No. 6,084,250, hereinafter "Justel"). This rejection is respectfully traversed.

To whatever extent that Justel teaches or does not teach phosphors as containing rare earth elements, the subject matter of dependent claim 9, it does not cure the above-noted deficiencies of Shimizu in view of Yamada and Cheetham.

Accordingly, it is respectfully submitted that dependent claim 9 patentably defines over the applied references for at least the same reason that parent independent claim 1 does and withdrawal of this improper rejection of claim 9 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Shimizu in view of Yamada and Cheetham in further view of Justel is respectfully requested.

### **103 REJECTION OF CLAIM 17**

Item 7 on page 10 of the outstanding Action sets forth a rejection of claim 17 under 35 U.S.C. § 103(a) as being unpatentable over Shimizu in view of Kelsey and further in view of Henrichs and Justel. This rejection is respectfully traversed.

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<sup>1</sup> The outstanding Action again includes a typographical error in referring this reference as "Juestel" instead of the actual name "Justel" that appears on U.S. Patent No. 6,084,250.

Henrichs and Justel are cited as to the subject matter added by dependent claim 17 to dependent claim 15 that ultimately depends from independent claim 12. However, to whatever extent that Henrichs and Justel may or may not teach the subject matter added by dependent claim 17 to dependent claim 15, it is clear that Henrichs and/or Justel do not cure the deficiencies noted above as to the reliance on Shimizu in view of Kelsey as to ultimate parent independent claim 12. Accordingly, it is respectfully submitted that dependent claim 17 patentably defines over the applied references for at least the same reason that parent independent claim 12 does. Therefore, withdrawal of this improper rejection of claim 17 under 35 U.S.C. §103(a) as being allegedly unpatentable over Shimizu in view of Kelsey in further view of Henrichs and Justel is respectfully requested.

**Conclusion**

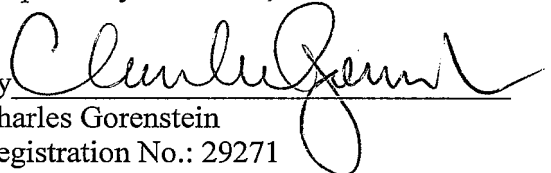
As all of the stated grounds of rejection have been properly traversed, Applicants respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn for the reasons noted above. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Raymond F. Cardillo, Jr., Registration No. 40,440 at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

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Respectfully submitted,

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